

WHAT IS CLAIMED IS:

1. An image pickup apparatus comprising:
first and second photoelectric conversion units
each including a plurality of photoelectric conversion
5 elements;

an image forming unit adapted to form images
viewed from different points on the plurality of
photoelectric conversion elements included in each of
said first and second photoelectric conversion units;
10 a first holding unit adapted to hold signals from
said first photoelectric conversion unit, said first
holding unit including at least the same number of
capacitors as the number of the plurality of
photoelectric conversion elements included in said
15 first photoelectric conversion unit;

a second holding unit adapted to hold signals from
said second photoelectric conversion unit, said second
holding unit including at least the same number of
capacitors as the number of the plurality of
20 photoelectric conversion elements included in said
second photoelectric conversion unit; and

a first common output line to which signals are
read out from the plurality of capacitors included in
each of said first and second holding units.

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2. An image pickup apparatus according to claim
1, wherein said image forming unit includes microlenses

provided respectively in said photoelectric conversion units.

3. An image pickup apparatus according to claim
5 1, further comprising:

third and fourth photoelectric conversion units
each including a plurality of photoelectric conversion
elements;

2 a second common output line to which signals are
10 sequentially read out from said first and third
photoelectric conversion units; and

a third common output line to which signals are
sequentially read out from said second and fourth
photoelectric conversion units;

15 wherein the plurality of capacitors included in
said first holding unit hold the signals from said
second common output line, and the plurality of
capacitors included in said second holding unit hold
the signals from said third common output line.

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4. An image pickup apparatus according to claim
1, wherein the photoelectric conversion unit includes
an amplification unit for amplifying and outputting
signals from the plurality of photoelectric conversion
25 elements, said amplification unit being provided as a
common amplification unit for the plurality of
photoelectric conversion elements.

5. An image pickup apparatus according to claim 1, wherein each of said first and second holding units includes a capacity for holding at least the same number of noise signals as that of the plurality of photoelectric conversion elements; and

said image pickup apparatus further comprises a differential circuit adapted to subtract the noise signals from signals including photoelectric conversion signals generated by the photoelectric conversion.

6. An image pickup apparatus according to claim 1, further comprising a control circuit adapted to control to perform focus adjustment based on a plurality of signals outputted sequentially from said common output line.

7. An image pickup apparatus according to claim 2, further comprising microlenses provided respectively in said plurality of photoelectric conversion elements.

8. An image pickup apparatus comprising:
first and second photoelectric conversion units each including a plurality of photoelectric conversion elements;

microlenses provided respectively in said first and second photoelectric conversion units, for focusing light onto the plurality of photoelectric conversion

elements included in each of said first and second photoelectric conversion units;

5 a first holding unit adapted to hold signals from said first photoelectric conversion unit, said first holding unit including at least the same number of capacitors as the number of the plurality of photoelectric conversion elements included in said first photoelectric conversion unit;

10 a second holding unit adapted to hold signals from said second photoelectric conversion unit, said second holding unit including at least the same number of capacitors as the number of the plurality of photoelectric conversion elements included in said second photoelectric conversion unit; and

15 a first common output line to which signals are read out from the plurality of capacitors included in each of said first and second holding units.

20 9. An image pickup apparatus according to claim 8, further comprising:

third and fourth photoelectric conversion units each including a plurality of photoelectric conversion elements;

25 microlenses provided respectively in said third and fourth photoelectric conversion units, for focusing light onto the plurality of photoelectric conversion elements included in each of said third and fourth

photoelectric conversion units;

a second common output line to which signals are sequentially read out from said first and third photoelectric conversion units;

5 a third common output line to which signals are sequentially read out from said second and fourth photoelectric conversion units;

wherein the plurality of capacitors included in said first holding unit hold the signals from said
10 second common output line, and the plurality of capacitors included in said second holding unit hold the signals from said third common output line.

10. An image pickup apparatus according to claim
15 8, wherein said photoelectric conversion unit includes an amplification unit adapted to amplify and output signals from the plurality of photoelectric conversion elements, said amplification unit being provided as a common amplification unit for the plurality of
20 photoelectric conversion elements.

11. An image pickup apparatus according to claim
8, wherein each of said first and second holding units includes a capacity for holding at least the same
25 number of noise signals as that of the plurality of photoelectric conversion elements; and

said image pickup apparatus further comprises a

differential circuit adapted to subtract the noise signals from signals including photoelectric conversion signals generated by the photoelectric conversion.

5 12. An image pickup apparatus according to claim
8, further comprising a control circuit adapted to
perform focus adjustment based on a plurality of
signals outputted sequentially from said common output
line.

10 13. An image pickup apparatus according to claim
8, further comprising microlenses provided respectively
in the plurality of photoelectric conversion elements.

15 14. An image pickup apparatus comprising:
an image pickup area including a plurality of
photoelectric conversion elements; and
a plurality of microlenses for focusing light onto
the plurality of photoelectric conversion elements;
20 wherein one microlens is provided for every
photoelectric conversion element in a first image
pickup region in said image pickup area, and one
microlens is provided for every plurality of
photoelectric conversion elements in a second image
25 pickup region in said image pickup area.

15. An image pickup apparatus according to claim

14, further comprising a drive circuit having in the first image pickup region a mode for reading out signals from the plurality of photoelectric conversion elements provided with a common microlens and a mode for adding and reading out signals from the plurality of photoelectric conversion elements.

5 for adding and reading out signals from the plurality
of photoelectric conversion elements.